

AMENDMENTS TO THE SPECIFICATION

PLEASE REPLACE the paragraph which bridges pages 11 and 12 of the application as filed with the following amended paragraph:

As already described, during the milking of an animal, the metering chamber 7 is repeatedly filled and emptied. FIG. 2 shows the sequence of steps conducted for sensing and recording data relating to the milk passing through the milk meter during each of the filling and emptying cycles. ~~As~~ At the end of an emptying phase the control unit produces a signal to cause the valve actuator 9 to close the outlet valve 8 as indicated by step 30. The conductivity sensor is employed to check whether a conductivity measurement is possible and hence determine whether sufficient milk has collected in the metering chamber to immerse the lower end of the probe 15, an attempt to make conductivity measurement being made in step 31 and in step 32 it being checked whether the measurement has been successful. ~~Step~~ Steps 31 and 32 are repeated until it is confirmed that the conductivity measurement succeeded and the control sequence then advances to step 33 whereat the conductivity measurement is recorded, the light absorption characteristic is sensed and recorded, the number of the filling cycle is recorded, the time is recorded, and the sampling pump 19 is actuated to remove a milk sample from the metering chamber via the sampling tube 18, which sample is passed to the analyser 20 for analysis. In step 34 it is checked whether the predetermined weight of milk has been collected in the metering chamber 7, this being done repeatedly until the question is answered positively when, in step 35, the valve actuator 9 is operated to open the valve 8 to initiate the next emptying phase. The control cycle is then repeated and continues until the teat cup is detached from the teat of the animal and flow of milk into the milk meter ceases.

AMENDMENTS TO THE CLAIMS

1. (Currently amended): A method of milking an animal comprising the steps of directing milk collected from the udder of the animal into a metering chamber which is repeatedly filled and emptied during the milking procedure, checking at least one of the quality ~~and/or~~ and the composition of the milk collected in the metering chamber, and counting the number of filling and emptying cycles of the metering chamber, characterised in that during each of at least several cycles of filling and emptying the metering chamber (1) the specific number of the respective filling and emptying cycle is recorded to thereby identify the stage in the course of milking during which the cycle has occurred, and (2) the quality or composition of the milk is checked by removing a milk sample is removed from the metering chamber for analysis[[,]] ~~and/or~~ or by sensing and recording at least one property of the milk in the metering chamber is ~~sensed and recorded, wherein the sensed and recorded at least one said property including~~ comprises at least one of electrical conductivity, a light absorption characteristic ~~and/or or~~ or temperature.

2. (Currently amended): A method according to claim 1, wherein said milk sample is ~~samples are~~ removed from the metering chamber and analysed to determine the somatic cell count, fat content, protein content, urea content ~~and/or or~~ enzyme (e.g. NAGase) content thereof.

3. (Currently amended): A method according to claim 1, wherein the milk sample is ~~withdrawn~~ removed from the metering chamber through a tube.

4. (Original): A method according to claim 3, wherein the tube is a suction tube extending downwardly into the metering chamber.

5. (Original): A method according to claim 1, wherein electrical conductivity of the milk is sensed by electrodes carried by a probe extending into the metering chamber.

6. (Original): A method according to claim 1, wherein a light absorption characteristic of the milk is sensed by a light source and light detector carried by a probe extending into the metering chamber.

7. (Original): A method according to claim 6, wherein electrodes, the light source and the light detector are carried by the same probe.

8. (Original): A method according claim 6, wherein the light source comprises a light emitting diode and the light detector comprises a photocell.

9. (Currently amended): A method according to claim 6, wherein a suction tube for ~~withdrawing~~ removing a milk sample is incorporated in the probe.

10. (Original): A method according to claim 1, wherein properties of the milk in the metering chamber are sensed by sensors carried by two or more probes extending into the metering chamber.

11. (Currently amended): A method according to claim 1, wherein recorded values relevant to the ~~quality/composition~~ quality or composition of the milk collected in the metering chamber during a selected filling and emptying cycle are compared with the corresponding recorded values related to milk collected in the metering chamber during a corresponding filling and emptying cycle during a previous milking of the animal.

12. (Currently amended): A method according to ~~of~~ claim 1, wherein the recorded values relevant to the ~~quality/composition~~ quality or composition of the milk collected in the metering chamber during a selected filling and emptying cycle are compared with the

corresponding recorded values relating to milk collected in the metering chamber during an earlier filling and emptying cycle during the milking procedure.

13. (Original): A method according to claim 1, wherein the emptying of the metering chamber is commenced when a predetermined amount of milk has collected therein, the predetermined amount being not more than about 1 litre or about 0.5 kg.

14. (Original): A method according to claim 1, wherein emptying of the metering chamber is commenced when the amount of milk collected therein reaches a value in the range of from 20 g to 400 g.

15. (Original): A method according to claim 14, wherein the emptying of the metering chamber is commenced when the amount of milk collected therein reaches a value in the range of from 50 g to 150 g.

16. (Original): A method according to claim 13, wherein the predetermined amount is selected in dependence upon the rate of flow of milk into the metering chamber.

17. (Original): A method according to claim 1, wherein the time of milking is recorded and the interval since the immediately preceding milking of the animal is recorded.

18. (Currently amended): A method according to claim 1, wherein the frequency of the filling and emptying cycles during which a milk sample is ~~taken and/or~~ removed or milk property values are sensed and recorded is selected in dependence upon the results of the analysis of a sample ~~taken and/or~~ removed or the milk property values sensed and recorded during a previous milking of the animal.

19. (Currently amended): A method according to claim 1, wherein the frequency of the filling and emptying cycles during which a milk sample is ~~taken and/or~~ removed or milk property values are sensed and recorded is selected in dependence upon the results of the

analysis of a sample taken from the metering chamber ~~and/or~~ or milk property values sensed and recorded during the milking procedure.

20. (Currently amended): A method according to claim 1, wherein a milk sample is ~~taken and/or removed~~ or milk property values are sensed and recorded during each filling and emptying cycle during at least part of the milking procedure.

21. (Original): A method according to claim 1, wherein the milk samples are removed from the metering chamber and are delivered directly to an analyser for analysis.

22. (Original): A method according to claim 1, wherein the milk samples removed from the metering chamber are delivered into sample collection containers and taken to a laboratory for analysis.

23. (Original): A method according to claim 1, wherein milk collected from respective teats of the udder of the animal is directed to respective milk metering chambers.

24. (Currently amended): A method according to claim 23, wherein recorded values relevant to the ~~quality/composition~~ quality or composition of the milk collected in the metering chambers connected to the respective teats of the animal are compared.

25. (Currently amended): A milk metering apparatus comprising a metering chamber into which milk from an udder of an animal is delivered in the course of milking the animal, the metering chamber having a milk inlet and a milk outlet for repeated filling and emptying of the metering chamber during the milking procedure, the number of filling and emptying cycles being counted for determination of the milk quantity, and a sampling duct communicating with the interior of the metering chamber and defining an auxiliary milk outlet for separate removal of milk samples from the metering chamber during respective filling and emptying cycles.

26. (Original): An apparatus according to claim 25, wherein an analyser is connected to the milk sampling duct for receiving and analysing samples removed from the metering chamber.

27. (Currently amended): An apparatus according to claim 26, wherein the analyser is operable to analyse the milk determining the somatic cell count, fat content, protein content, urea content ~~and/or~~ or enzyme (e.g. ~~NAGase~~) content.

28. (Original): An apparatus according to claim 25, wherein a sample collecting device is connected to the milk sampling duct for milk samples removed from metering chamber to be collected in sample containers.

29. (Original): An apparatus according to claim 25, wherein the sampling duct is connected to a suction device operable to remove a sample from the metering chamber by suction through the sampling duct.

30. (Original): An apparatus according to claim 25, wherein the sampling duct is formed in a tube extending downwardly into the metering chamber.

31. (Currently amended): An apparatus according to claim 25, wherein at least one sensor is provided in the metering chamber for sensing a property of milk in the metering chamber, the milk property being electrical conductivity, a light absorption or transmission characteristic ~~and/or~~ or temperature.

32. (Original): An apparatus according to claim 31, wherein a probe extending down into the metering chamber includes the sampling duct and carries the at least one sensor.

33. (Currently amended): A milk metering apparatus comprising a metering chamber into which milk from an udder of an animal is delivered in the course of milking the animal, the metering chamber having a milk inlet and a milk outlet for repeated filling and

emptying of the metering chamber during the milking procedure, the number of filling and emptying cycles being counted for determination of the milk quantity, at least one sensor in the metering chamber for sensing a property of the milk in the metering chamber, the milk property being electrical conductivity, a light absorption or transmission characteristic ~~and/or~~ or temperature, and recording means which records values of the at least one property sensed ~~for comparison~~ and compares these recorded values with corresponding sensed and recorded values.

34. (Currently amended): An apparatus according claim ~~34~~ 33, wherein the at least one sensor comprises electrodes for sensing the electrical conductivity of milk in the metering chamber.

35. (Currently amended): An apparatus according to claim ~~34~~ 33, wherein the at least one sensor comprises a light emitting device and a light detecting device for sensing a light absorption characteristic of milk in the metering chamber.

36. (Original): An apparatus according to claim 35, wherein the light emitting device comprises a light emitting diode and the light detecting device comprises a photocell.

37. (Currently amended): An apparatus according to claim ~~34~~ 33, wherein a plurality of sensors are located in the metering chamber, and two or more probes extend into the metering chamber and carry the sensors.

38. (Currently amended): An apparatus according to claim ~~34~~ 33, wherein recording means for recording property values of a milk sample ~~and/or~~ or milk in the metering chamber records the number of the filling and emptying cycle during which the sample was removed from the metering chamber ~~and/or~~ or the property values were sensed in the metering chamber.

39. (Original): An apparatus according to claim 38, wherein the recording means records the time of milking and the interval since the immediately preceding milking of the animal.

40. (Currently amended): An apparatus according to claim ~~31~~ 33, including control means arranged to control the frequency of the filling and emptying cycles during which a milk sample is removed from the metering chamber through the sampling duct ~~and/or~~ or of milk property values are sensed and recorded.

41. (Currently amended): An apparatus according to claim 40, wherein the control means is so arranged that the frequency set by the control means is dependent upon the results of a milk sample taken ~~and/or~~ or milk property values sensed and recorded during a previous milking of the animal.

42. (Currently amended): An apparatus according to claim 40, wherein the control means is so arranged that the frequency set by the control means is dependent upon the results of analysis of a milk sample taken ~~and/or~~ or milk property values sensed and recorded during the same milking of the animal.

43. (Original): An apparatus according to claim 25, wherein the metering chamber is defined within a measuring container supported by a weighing device, and means are provided to cause removal of a sample from the metering chamber via the sampling duct in response to a signal from the weighing device.

44. (Original): An apparatus according to claim 43, wherein the weighing device comprises a strain gauge on which the measuring chamber is supported.

45. (Currently amended): An apparatus according to claim 25, wherein the metering chamber has a milk collecting capacity not greater than 1 litre or 0.5 kg.

46. (Original): An apparatus according to claim 45, wherein the milk collecting capacity of the metering chamber is in the range of 20 to 400 g, preferably 50 to 150 g.

47. (Original): An apparatus according to claim 25, wherein a plurality of metering chambers are provided and are connected to respective teat cups.

48. (Currently amended): An apparatus according to claim 47, including means to compare recorded values relevant to the ~~quality/composition~~ quality or composition of the milk collected in the respective metering chambers.

49. (Original): An apparatus according claim 33, wherein the at least one sensor comprises electrodes for sensing the electrical conductivity of milk in the metering chamber.

50. (Original): An apparatus according to claim 33, wherein the at least one sensor comprises a light emitting device and a light detecting device for sensing a light absorption characteristic of milk in the metering chamber.

51. (Original): An apparatus according to claim 50, wherein the light emitting device comprises a light emitting diode and the light detecting device comprises a photocell.

52. (Original): An apparatus according to claim 33, wherein a plurality of sensors are located in the metering chamber, and two or more probes extend into the metering chamber and carry the sensors.

53. (Original): An apparatus according to claim 33, wherein recording means for recording property values of milk in the metering chamber records the number of the filling and emptying cycle during which the property values were sensed in the metering chamber.

54. (Original): An apparatus according to claim 53, wherein the recording means records the time of milking and the interval since the immediately preceding milking of the animal.

55. (Original): An apparatus according to claim 33, including control means arranged to control the frequency of the filling and emptying cycles during which milk property values are sensed and recorded.

56. (Currently amended): An apparatus according to claim 55, wherein the control means is so arranged that the frequency set by the control means is dependent upon the results of a milk sample taken ~~and/or~~ or milk property values sensed and recorded during a previous milking of the animal.

57. (Original): An apparatus according to claim 55, wherein the control means is so arranged that the frequency set by the control means is dependent upon the milk property values sensed and recorded during the same milking of the animal.